[0013] In the context of treating the loss or impairment of vision due to retinoid deficiency, which is a chronic condition requiring lifetime treatments, these toxic effects can be very important. These side effects are of particular concern in young patients, whose susceptibility to side effects related to their physical development is well documented.

[0014] This combination of a need for repeated administration in response to bleaching, and the undesirable serious side effects of repeated administration, poses a problem for the use of synthetic retinoids to treat the loss of vision caused by retinoid deficiency. A recent study evaluated the usefulness of retinoids as a treatment for these disorders and concluded that retinoids and similar compounds are simply not good clinical candidates for the treatment of retinoid deficiency disorders. See, Fan J. et al. "Light Prevents Exogenous 11-*cis* Retinal from Maintaining Cone Photoreceptors in Chromophore-deficient Mice", Invest. Ophthalmol.Vis Sci. January 12, 2011, 10-6437. .

[0015] It has now been discovered that by use of certain dosing regimens of synthetic retinal derivatives, it is possible to produce meaningful improvement or recovery of vision that is long lasting, while chronic toxic effects can be greatly reduced or even eliminated. This was completely unexpected, and indeed is completely contrary to the expectation of the art.

SUMMARY OF THE INVENTION

[0015a] In one aspect, there is provided the use of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal in the preparation of a medicament for treating loss or impairment of vision caused by a retinoid deficiency disorder in a patient, wherein said medicament is to be administered in a dosing regimen characterized by:

a) administering to the patient an initial therapeutically effective dose of said medicament,

b) refraining from administering to the patient said medicament for a resting interval of at least 1 month,

c) administering to the patient an additional therapeutically effective dose of said medicament; wherein the initial dose is administered in a divided dose over a period of up to two weeks.

[0015b] In another aspect, there is provided the use of a synthetic retinal derivative for manufacturing a medicament for improving one or more of visual acuity and visual field in a human subject having a deficiency of endogenously produced 11-cis-retinal, wherein the synthetic retinal derivative is 9-cis-retinyl acetate, wherein the medicament comprise the 9-cis-retinyl acetate in an amount selected from 1.25 mg/mL, 5.0 mg/mL, and 20 mg/mL and 0.10% w/w BHA in a soybean oil vehicle, wherein the 11-cis-retinal deficiency is a disorder caused by a mutation in a gene selected from the LRAT gene and the RPE65 gene, and wherein the medicament is administered according to a dosing schedule that provides for

a) administering to the human subject a once-daily initial dose of 10 mg/m^2 or 40 mg/m^2 for 7 days,

b) refraining from administering to the human subject an additional therapeutically effective dose of the synthetic retinal derivative for a resting period of at least 1 month, and

c) administering to the human subject an additional therapeutically effective dose of the synthetic retinal derivative.

[0016] The present ~~invention~~disclosure is directed to therapeutic regimens and methods for treating or ameliorating visual disorders associated with an endogenous retinoid deficiency in a subject, wherein the method and therapeutic regimen comprises the following sequential steps:

[0017] a) Administering to the subject a first dose of a first therapeutically effective amount of a synthetic retinal derivative or a first therapeutic effective amount of a pharmaceutically acceptable composition comprising a synthetic retinal derivative that provides for replacement of endogenously produced 11-cis-retinal;

[0018] b) commencing a resting period of at least one month during which a synthetic retinal derivative is not administered to the subject;

[0019] c) administering to the subject a second therapeutically effective amount of the synthetic retinal derivative;

[0020] d) repeating steps a through c as needed.

[0021] The therapeutic regimen described above is characterized in that the subject's visual function is meaningfully improved. This improvement is of a duration that is clinically useful and is not associated with toxic effects that would prevent or limit its long term use.

[0022] This ~~invention~~disclosure is also directed to kits comprising a therapeutic effective amount of a synthetic retinal derivative or a therapeutic effective amount of a pharmaceutically acceptable composition comprising a synthetic retinal derivative and instructions for administering the synthetic retinal derivative or the pharmaceutically acceptable composition to a subject according to the therapeutic regimen disclosed herein. Preferably, the kits are for use in the treatment or amelioration of a visual disorder associated with endogenous retinoid deficiency in a subject.

[0023] The therapeutic regimens and methods of the ~~invention~~present disclosure maximize the efficacy of synthetic retinal derivatives or pharmaceutically acceptable compositions comprising synthetic retinal derivatives when administered to a subject while